REMARKS

Applicant acknowledges with thanks the examiner's indication that claims 8-11 would be allowable if re-written in independent form to include the limitations of the base and intervening claims.

Claims 1-25 are pending in the above-identified application. Claim 1 is independent.

The examiner rejected claims 1-3, 5, 7, 12, 15-16, 22-23 and 25 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,838,029 to Shakuda. The examiner rejected claims 4, 6, 13-14, 17-21 and 24 under 35 U.S.C. §103(a) as being unpatentable over Shakuda in view of U.S. Patent No. 7,096,873 to Uemura et al.

Specifically, with respect to claim 1, the examiner stated:

> Shakuda discloses a light emitting device with
> (1) providing a semiconductor body containing a substrate (21) and at least one nitride compound semiconductor disposed on the substrate (21) (see Figure 1b);
> applying a metal layer to a surface of the semiconductor body (see Figure 1b);
> dry-chemically removing a part of the metal layer and a part of the semiconductor body previously covered by the removed metal layer (see column 2, lines 8-10. Figures 1c-1f); (Office Action, page 2)

Applicant respectfully disagrees.

Applicant's independent claim 1 recites "dry-chemically removing a part of the metal layer and a part of the semiconductor body previously covered by the removed metal layer." Thus, applicant's independent claim 1 requires that part of the metal layer deposited on the semiconductor body, as well as part of semiconductor body, be dry-chemically removed.

Shakuda describes a light emitting device based on a gallium nitride compound semiconductor (Abstract). Shakuda explains:

> **Then, the surface of stacked semiconductor layers is coated at the top with a resist layer 31 of approximately 0.3 to 3 micrometers in thickness having a pattern uncovering regions to be etched, as shown in FIG. 1(c). The pattern of the resist layer is arranged so that the side of its opening 32 is substantially perpendicularly to the top surface of the substrate 21 or the stacked semiconductor layers.**
>
> **Next, the stacked semiconductor layers is subjected to reactive ion etching process under an atmosphere of Cl_2 plasma gas where the active layer 26 is**

etched until the n-type cladding layer 25 or the high-temperature buffer layer 24 is exposed as shown in FIG. 1(d). As thus etched surface determines the end surfaces of the semiconductor light emitting device. The etching process is designed so that the light emitting surfaces exposing the active layer and end surfaces facing to the light emitting surface through a light waveguide are (0001) crystal plane of the $Ga_xIn_{1-x}N$ layer. Accordingly, the end surfaces are finished to be smooth and favorable quality mirror surfaces. Then, a pattern of metal coating made of Au or Al is provided to form a p-side electrode 29 on the cap layer 28 and an n-side electrode 30 on the exposed high-temperature buffer layer 24 (FIG. 1(e)). This is followed by dicing to produce an LED chip form shown in FIG. 2. Alternatively, the cap layer 28 and a part of the upper cladding layer 27 are etched with p-side electrode being used as a mask by a reactive ion etching process under an atmosphere of Cl_2 gas to form a mesa type, then the substrate 21 is cleft in such a direction that smooth crystal planes of the substrate and epitaxial growth layers are exposed. As a result, the semiconductor laser chip of Example 1 has a light emitting surface highly smoothed while its p-side electrode 29 extending in a stripe of 4 to 10 micrometers wide and provided with mirror end surfaces (FIG. 1(f)).
(Col. 8, lines 34-67)

Shakuda explicitly states that in one embodiment, pertaining to FIG. 1(e), the stacked semiconductor layers is ion etched to expose desired areas of the n-type cladding layer 25, and that subsequently a pattern of metal coating is applied to the etched semiconductor to form the p-side electrode 29. Thus, in this embodiment, the etching process is performed only on a semiconductor material.

In an alternative embodiment, as described in the above passage, and as shown in FIG. 1(f), the p-side electrode 29 is used as a mask for the ion-etching process. In that embodiment the etching is not performed on the p-side electrode, because that electrode is used as the mask that protects the part of the semiconductor layers 27 and 28 underlying the electrode 29. Were the electrode 29 etched, it could not have possibly served as a mask because it would be etched away and destroyed.

Accordingly, the above passage fails to describe dry-chemical removal of part of a metal layer and a part of the semiconductor body previously covered by the removed metal layer.

The examiner also relied on Shakuda's col. 2, lines 8-10 to support the contention that Shakuda discloses the feature "dry chemical removing a part of the metal layer and a part of the semiconductor body previously covered by the removed metal layer." The referenced paragraph in Shakuda states:

> **Whole surfaces of growth layers of the semiconductor material is then coated with a protective layer of e.g. SiO_2 and the like and annealed for approximately 20 to 60 minutes at a temperature ranging from 400° to 800° C, allowing both the p-type cap layer 59 and the p-type cladding layer 58 to be activated. After the protective layer is removed, a resist pattern is applied for assigning n-type electrodes. When the semiconductor layers are subjected to dry etching by chlorine plasma atmosphere, desired , regions of the n-type GaN high-temperature buffer layer 55 are exposed as shown in FIG. 7. Finally, two electrodes 61 and 60 are formed by sputtering of a metal film such as Au or Al. The semiconductor layers are then diced to LED chips. (Emphasis added, col. 2, lines 1-13)**

Thus, the above-referenced passage explicitly provides that it is the semiconductor layers that are subjected to dry etching. Nowhere does Shakuda describe that a metal layer is subjected to such dry etching. Rather, upon completion of the dry-etching performed on the semiconductor layers, the electrodes are formed by performing a sputtering of a metal film. Such sputtering is a procedure in which a metal layer is deposited on the underlying material (see, for example, col. 12, lines 27-29.) Accordingly, the above-references passage also does not describe that a metal layer is dry-chemical removed or etched.

Thus, Shakuda fails to disclose or suggests at least the feature "dry-chemically removing a part of the metal layer and a part of the semiconductor body previously covered by the removed metal layer," as required by applicant's independent claim 1. Independent claim 1 is therefore patentable over the cited art.

Claims 2-25 depend from independent claim 1 and are therefore patentable for at least the same reasons as applicant's independent claim 1.

It is believed that all the rejections and/or objections raised by the examiner have been addressed.

In view of the foregoing, applicant respectfully submits that the application is in condition for allowance and such action is respectfully requested at the Examiner's earliest convenience.

All of the dependent claims are patentable for at least the reasons for which the claims on which they depend are patentable.

Canceled claims, if any, have been canceled without prejudice or disclaimer.

Any circumstance in which the applicant has (a) addressed certain comments of the examiner does not mean that the applicant concedes other comments of the examiner, (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims, or (c) amended or canceled a claim does not mean that the applicant concedes any of the examiner's positions with respect to that claim or other claims.

No fees are believed due. Please apply any required fees to deposit account 06-1050, referencing the attorney docket number shown above.

Respectfully submitted,

Date: May 23, 2007

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